Los Alamos scientists advance biomass fuel production

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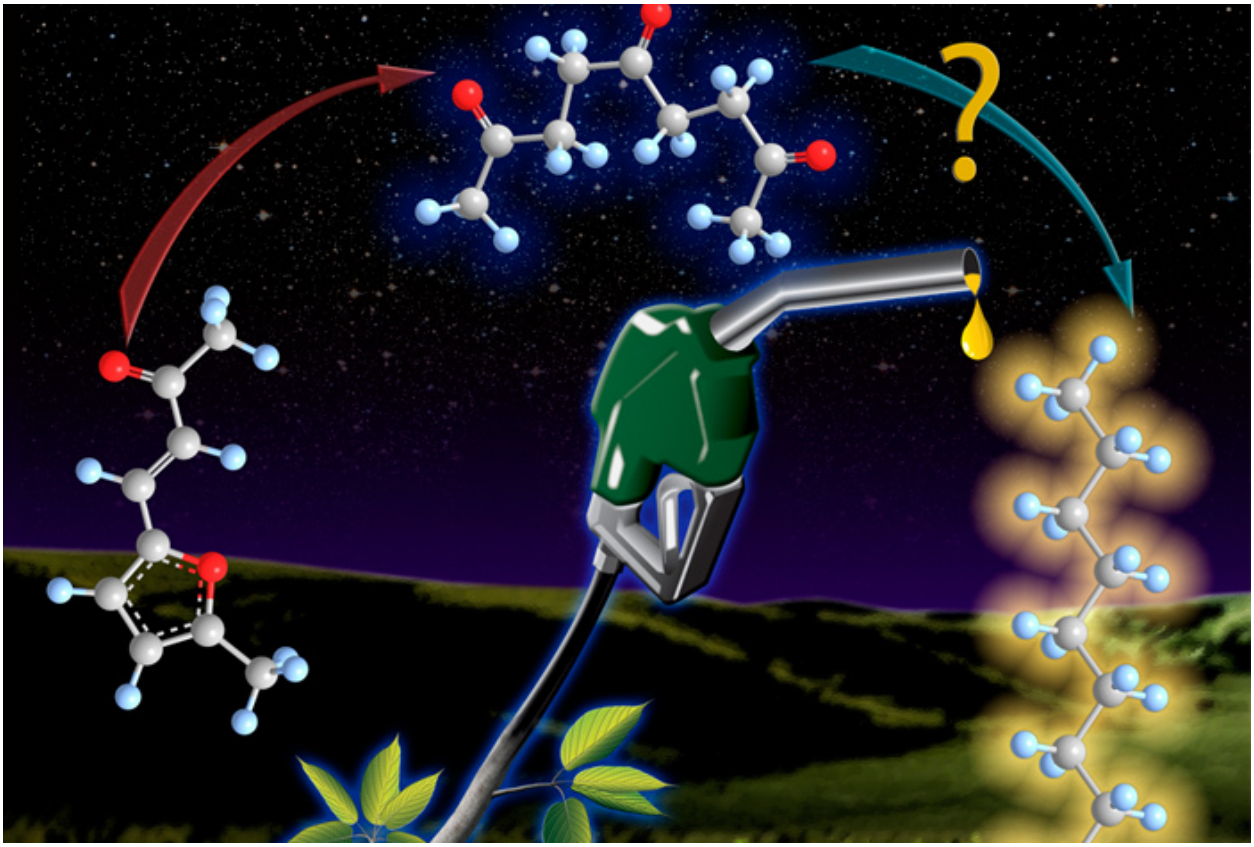

While producing renewable energy from waste plant material could help reduce our country's dependence on oil, challenges include the development of processes that avoid high pressures and temperatures that, in turn, make such processing expensive. Work by Laboratory scientists and collaborators could reduce such constraints and make cellulose—the most common organic compound on the planet—usable for energy production.

Carbohydrates (sugars) possess inherently low energy densities. The researchers have found a way to increase the carbon content within the biomass molecules to make them suitable for high-energy-density fuel production.

Ultimately, the work demonstrates that molecules available from non-food-based biomass could provide a feasible way to produce gasoline and diesel fuels. This is important because the use of non-food-based sources for the work (such as agricultural

wastes and switchgrass) eliminates competition for land and crops that are used for nourishment.

Next steps for the researchers include work to scale up the laboratory experiments toward production levels and a search for technology-transfer partners. Several patents on the work have been filed.

The Laboratory Directed Research and Development program funded the work.

For more about the science behind this work, see articles in; (1) *Catalysis Science & Technology*, (http://pubs.rsc.org/en/content/articlepdf/2013/cy/c2cy20395b) and; (2) *Nature Chemistry,* http://www.nature.com/nchem/journal/v5/n5/index.html).

For more information on Lab technology transfer opportunities, go to http://www.lanl.gov/collaboration/tech-transfer/index.php.